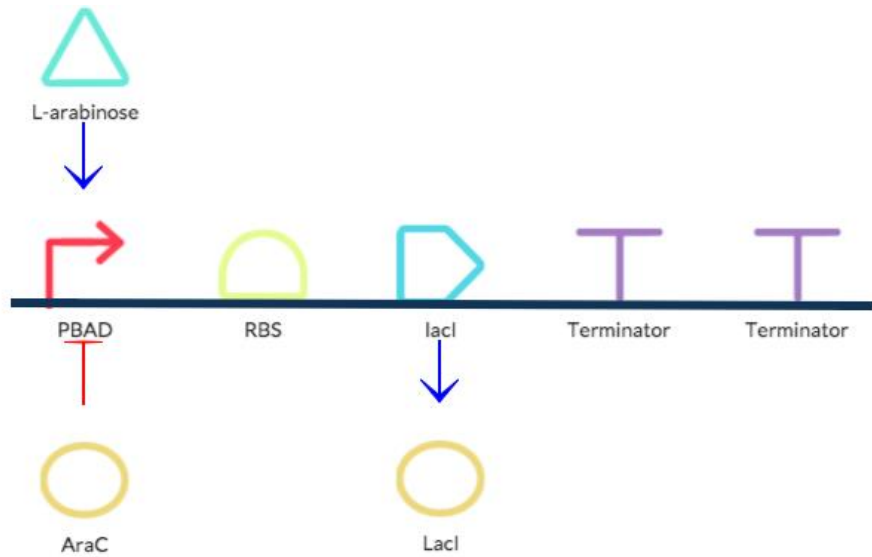


## Part C



### Formulae for two certain parts

$$\frac{d[\text{LacI}]}{dt} = \chi_{PBAD} \alpha_{lacI} [\text{lacI}^F] - d[\text{LacI}]$$

$$[\text{lacI}^F] = \frac{[\text{lacI}]}{1 + \left( \frac{[\text{AraC}]}{\beta_{AraC}} \right)^{\mu_{AraC}}} \frac{[\text{L-Arabinose}]}{\beta_{\text{L-Arabinose}} + [\text{L-Arabinose}]}$$

### Parameter Table

| Symbols          | Parameters                         | Values and Units            |
|------------------|------------------------------------|-----------------------------|
| Beta_IPTG        | IPTG Repression coefficient        | 4                           |
| Beta_LacI        | LacI Repression coefficient        | 3                           |
| Beta_Arac        | Arac Repression coefficient        | 4                           |
| Beta_L_Arabinose | L_Arabinose Repression coefficient | 3                           |
| Mju_LacI         | LacI Cooperativity coefficient     | 2                           |
| Mju_Arac         | Arac Cooperativity coefficient     | 2                           |
| Alpha_CheZ       | Translation rate of CheZ           | 3.467umol*min <sup>-1</sup> |
| Alpha_LacI       | Translation rate of LacI           | 2.734umol*min <sup>-1</sup> |

**Reference:** <http://2014.igem.org/Team:XMU-China>